

samples were then dried in an air oven overnight keeping the temperature below 75°C. Each milled sample was checked for Brookfield and Hercules viscosity at approximately 65% solids and for particle size on the Sedigraph. The results of this work are summarized in the table below.

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	As is SPS	Kady Mill Solids (%)			
		30	40	50	55
Brookfield Viscosity, cp @ 20 RPM (% improvement)	1580	1605 (-2%)	1090 (31%)	1375 (13%)	475 (70%)
Hercules Viscosity @ 18 Dynes, RPM	155	220	375	890	900
<u>Apparent Hercules Viscosity, cP (% improvement)</u>	<u>2218</u>	<u>1562</u> (30%)	<u>917</u> (59%)	<u>386</u> (83%)	<u>382</u> (83%)
Viscosity Solids, %	65.0	65.0	65.0	65.0	64.6
Particle Size					
- % < 5μ	97	97	97	97	97
- % < 2μ	76	78	78	77	78
- % < 1μ	57	59	60	59	61
- % < 0.5μ	33	37	38	39	40
- % < 0.2μ	8	13	14	16	17

The results suggest that the Brookfield, as well as Hercules viscosity, is improved by Kady milling the kaolin sample.

[046] A spray dried sample of Capim NP was dispersed at 62% solids in water.

The 0.5-gallon samples were milled/liquid worked in a Kady mill for 10 minutes and 20 minutes. The samples were then dried in an air oven overnight keeping the temperature below 75°C. Each milled sample was checked for Brookfield and Hercules

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viscosity at approximately 67% solids and for particle size on the Sedigraph. The results of this work are summarized in the table below.

	Spray Dried Capim NP	Kady Milling Time	
		10 Minutes	20 Minutes
Brookfield Viscosity, cp @ 20 RPM	210	135	135
(% improvement)		(36%)	(36%)
Hercules Viscosity, RPM @ 18 Dynes or Dynes @ 1100 RPM	580 RPM	9.4 Dynes	7.0 Dynes
<u>Apparent Hercules Viscosity,</u> <u>cP</u>	<u>593</u>	<u>163</u>	<u>121</u>
<u>(% improvement)</u>		<u>(73%)</u>	<u>(80%)</u>
Viscosity Solids, %	67.3	67.2	67.0
Particle Size			
- % < 5 μ	98	99	98
- % < 2 μ	81	81	81
- % < 1 μ	59	60	60
- % < 0.5 μ	35	36	36
- % < 0.2 μ	11	12	11

The results show that the Brookfield and Hercules viscosity is improved by Kady milling the kaolin sample.

[047] The processing is the same as in Example II except the product is Capim DG at 65% solids and viscosity testing was done at approximately 70% solids.

	Spray Dried Capim DG	Kady Milling Time	
		10 Minutes	20 Minutes
Brookfield Viscosity, cP @ 20 RPM	305	250	215
(% improvement)		(18%)	(30%)
Hercules Viscosity, RPM @ 18 Dynes or Dynes @ 1100 RPM	880 RPM	1100 RPM	12.2 Dynes
<u>Apparent Hercules Viscosity, cP</u>	<u>391</u>	<u>312</u>	<u>212</u>
<u>(% improvement)</u>		<u>(20%)</u>	<u>(46%)</u>
Viscosity Solids, %	70.0	70.1	70.2
Particle Size			
- % < 5 μ	99	99	99
- % < 2 μ	90	90	90
- % < 1 μ	73	73	73
- % < 0.5 μ	47	47	47
- % < 0.2 μ	13	13	17

These results also show that the Brookfield and Hercules viscosity is improved by Kady milling the kaolin sample with none or insignificant change in measured particle size.

[048] A sample of DB-Plate re-blunged filter cake was obtained from the plant at 51.6% solids. Half-gallon samples of this material were Kady milled at 5 minutes, 10 minutes, and 20 minutes. A control sample was also run without subjecting it to Kady milling. The samples were then dried in an air oven overnight keeping the temperature below 75°C. Each sample was checked for Brookfield and Hercules

viscosity at approximately 67% solids and for particle size on the Sedigraph. The results of this work are summarized in table below.

	Kady Milling Time			
	0 Minutes	5 Minutes	10 Minutes	20 Minutes
Brookfield Viscosity, cp @ 20 RPM (% improvement)	260	220 (15%)	225 (13%)	220 (15%)
Hercules Viscosity, RPM @ 18 Dynes	610	610	760	835
<u>Apparent Hercules Viscosity, cP (% improvement)</u>	<u>564</u>	<u>564</u> <u>(0%)</u>	<u>452</u> <u>(20%)</u>	<u>412</u> <u>(27%)</u>
Viscosity Solids, %	67.5	67.7	67.5	67.7
Particle Size				
- % < 5 μ	99	--	--	98
- % < 2 μ	83	--	--	83
- % < 1 μ	64	--	--	65
- % < 0.5 μ	44	--	--	45
- % < 0.2 μ	21	--	--	21

Again, these results are similar to results in Examples II and III.

IN THE CLAIMS:

Please cancel Claims 1-43, and add new claims 44-78 as follows:

44. A method for improving the high and low shear rheology of a substantially grit-free and substantially fluid particulate suspension comprising kaolin clay, the method comprising the steps of:
- providing a particulate suspension having an initial apparent Hercules viscosity and an initial Brookfield viscosity; and

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